

AMBIENT AND PERSONAL PM₁₀ EXPOSURE IN WOMEN IN RELATION TO TIME ACTIVITY, SOCIOECONOMIC STATUS, AND LOCATION OF RESIDENCE IN DELHI, INDIA.

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Background and Aims: Many megacities in developing countries are undergoing rapid economic growth, with direct effects on their air quality particularly particulate matter (PM). In Delhi reductions in PM₁₀ after 2001, when all modes of Public Transport (PT) in Delhi were converted to compressed natural gas (CNG), have since been outweighed by the increase in car ownership (average annual Delhi PM₁₀ levels: in 1994, before PT ran on CNG, around 275µg/m³; in 2001 when all PT was converted to CNG, around 125µg/m³; levels in 2010, around 225µg/m³). A previous study investigated indoor and outdoor PM₁₀ levels (Kulshreshtha), however, there are no studies of *personal* exposure. This study aims to quantify PM₁₀ levels in women with different individual and area characteristics of socio-economic status (SES). This pilot study aims to inform future, large scale investigations.

Methods:

- 'Shadowing' 6 women (2 with high personal SES living in rich areas, 2 from low SES living in rich areas, and 2 from low SES living in poor areas), and recording their personal PM₁₀ exposure using a 'Sidepak' monitor for 6 hours (10am to 4pm), on 3 days.
- Time Activity Diary filled every 15 minutes during recording period.
- Systematic neighbourhood observation using proforma.

Results: Personal and Ambient PM₁₀ exposure affected by residential location, and socioeconomic status. Time activity diary, proforma reveal when and why personal PM₁₀ levels vary through the study period.

Conclusions: This study contributes to the observation of the relative impact of economic growth, socioeconomic status, and residential location on personal PM₁₀ exposure, emphasising the need for continued vigilance, and larger scale studies on the topic. Also, perhaps studies need to be done at different seasons. Seasonal differences in indoor and outdoor PM₁₀ levels we recorded in previous studies.

References:

Kulshreshtha P and Khare M 2010, *Indoor Air Pollution and Health*, Vdm Verlag, Germany.

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